

PRESENTATION TO THE SUBCOMMITTEE ON SPACE AND AERONAUTICS

COMMITTEE ON SCIENCE AND TECHNOLOGY

UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: NASA'S ASTRONAUT HEALTH CARE SYSTEM—RESULTS OF AN
INDEPENDENT REVIEW

STATEMENT OF: COLONEL RICHARD E. BACHMANN, JR.
COMMANDER AND DEAN OF THE U.S. AIR FORCE SCHOOL OF
AEROSPACE MEDICINE

6 SEPTEMBER 2007

NOT FOR PUBLICATION UNTIL RELEASED
BY THE COMMITTEE ON SCIENCE AND TECHNOLOGY
UNITED STATES HOUSE OF REPRESENTATIVES

Testimony before the House Science and Technology Committee
Colonel Richard Bachmann
NASA Astronaut Health Care System Review Committee Chairman
Date: 6 September 2007

Mr. Chairman, Honorable members of the Science and Technology Committee,
good afternoon.

My name is Colonel Richard Bachmann. I am the chairman of the NASA Astronaut Health Care System Review Committee. This committee was chartered by NASA in February 2007 to conduct a review of the medical and behavioral health care provided to astronauts and to provide opinions as to what, if any, procedures or testing could be put in place to predict disordered conduct or acts of passion.

In order to accomplish this review, the NASA Chief Health and Medical Officer contacted the senior medical officers of various Federal agencies, such as the Department of Veterans Affairs, the Department of Defense, and the Federal Aviation Administration, and solicited nominations of “appropriately credentialed physicians and mental health professionals, employed by the Federal government or on active duty in the military services, and experienced in medical and behavioral health support to organizations and personnel engaged in critical or hazardous operations.” The NASA Chief Health and Medical Officer selected the committee members from the pool of nominees based on professional credentials, operational experience and availability. Assignment and notification to the committee members occurred in late February 2007.

I was asked by the NASA Chief Health and Medical Officer to serve as chairman. I am an Air Force flight surgeon, specialist in Aerospace and Occupational Medicine, and until last week, I was the Commander and Dean of the US Air Force School of Aerospace Medicine. I am now the Special Assistant to the Air Force Research Laboratory Commander, and the new Commander of the US Air Force School of Aerospace Medicine works for me.

The committee members are as follows:

Colonel Timothy Sowin, Air Force flight surgeon, specialist in both psychiatry and aerospace medicine, and currently the Chief of the Aviation Neuropsychiatry branch at the US Air Force School of Aerospace Medicine.

Colonel James Bagian, Air Force Reserve flight surgeon, specialist in aerospace medicine, former NASA astronaut-physician, and currently Chief Patient Safety Officer, Department of Veterans Affairs.

Mark Bauer, specialist in psychiatry, Professor of Psychiatry, Brown University and Providence Veterans Affairs Medical Center.

James Fraser, Captain US Navy retired, specialist in aerospace medicine, currently Deputy Federal Air Surgeon, Federal Aviation Administration.

Sandra Yerkes, Captain US Navy retired, specialist in psychiatry, currently Director, NAVMED Medical Accessions.

Elizabeth Holmes, Captain US Navy retired, clinical psychologist, currently on faculty at the Stockdale Center for Ethical Leadership.

Paul DeLaney, Captain US Navy Judge Advocate General Corps, currently assigned to the US Navy Chief of Staff, Office of the Judge Advocate General.

Ex officio members of the committee are:

James Duncan, NASA Chief of Space Medicine Operations at Johnson Space Center
Wayne Frazier, NASA Office of Safety and Mission Assurance

Consultant – Ellen Baker, current NASA astronaut physician

Executive Secretary – John Allen, NASA Program Executive, Crew Health and Safety.

The committee members were nominated by their respective Federal agencies and selected by NASA because of their diverse backgrounds, extensive experience, and professional credentials. The committee's overarching goal is to enhance the ability of NASA to perform its mission safely and effectively. All the members of the committee feel greatly honored to have been selected for this task, and look upon it as a civic duty to the nation.

It is important to reiterate that the committee's findings, recommendations and opinions provided to NASA in this report do not reflect the official positions of the Air Force, Navy, Department of Defense, FAA, or VA. The committee was called into being by NASA to provide this report, and with the delivery of the report, the committee's mission is complete. The committee members will continue to be available to NASA to provide clarification or explanation on the report itself, but the work of further evaluation, deliberation and action on the information contained in the report falls to NASA. The committee was not intended to provide ongoing oversight or assess NASA's response to any issues raised in the report.

Our task was to identify potential vulnerabilities in NASA's medical and behavioral health system and to recommend to NASA potential corrective actions or areas requiring further study.

The committee convened for its first meeting at NASA Headquarters in Washington DC on March 28, 2007 and received informational briefings from a wide variety of NASA functional experts. NASA provided the committee with an extensive set of policy documents and reports for review and future reference.

After several weeks of document review, research and meetings via teleconference, the committee met at Johnson Space Center from 23 to 26 April, 2007. During this period, Johnson Space Center personnel presented informational briefings and were interviewed by the committee. Then the committee divided into small teams and conducted onsite reviews throughout the medical and behavioral health areas. These reviews consisted of document reviews and interviews with individuals and groups. NASA astronaut, medical and family support office personnel assisted in soliciting astronauts and family member volunteers to be interviewed by the committee. During the interviews, NASA personnel were encouraged to speak freely, and were assured that no personally identifiable information would be included in the report. Although the astronauts and family members interviewed do not represent a random or exhaustive sample of the larger population, the issues they raised during these unstructured interviews were remarkably consistent and compelling and deserve focused action.

The committee members met at the end of each day and reviewed their findings and observations with the entire committee. After the committee's departure from Johnson Space Center, astronauts and family members continued to contact and were interviewed by individual committee members.

Following the visit to JSC and subsequent interviews, each committee member wrote up his or her findings and recommendations and shared them with the entire committee via email and telephonic discussions. The NASA astronaut advisor and ex-officio members of the committee were not included in the development of findings and recommendations, but were

available to the committee to answer questions regarding NASA policies and procedures. The committee gathered at the US Air Force School of Aerospace Medicine from 30-31 May to draft the report. The committee decided to organize the report's findings and recommendations according to the specific questions given to the committee by the NASA CHMO at our initial formative meeting.

Each member was free to determine the level of significance required for any particular piece of information to be considered a finding. Each member's proposed findings and recommendations were grouped under the appropriate subject area and combined whenever possible. Each finding and recommendation was considered, discussed and carefully written to ensure significance, validity and clarity. The committee's criteria for a finding to be included in the report were based on whether the finding addressed a specific question NASA asked the committee to evaluate, and/or whether the issue identified significant concerns regarding astronaut health, flight safety or mission completion. During the initial phase of deliberations, we recognized that dissenting opinions might arise and allowed for a minority report to be included, but this proved to be unnecessary. The entire report, all findings and recommendations, were approved unanimously by the entire committee.

Work continued on the final wording for the next few weeks, with each proposed refinement reviewed and approved by the entire committee. A draft of the report was provided to NASA on June 21st for correction of any factual errors and we received their response on July 3rd. The committee formally presented the findings and recommendations to the NASA Administrator and senior NASA staff on July 16th. After some very minor revisions to provide

additional clarity, the report was finalized and delivered to NASA on July 25th. NASA released the report to the public in concert with a news conference on July 27th.

The committee received outstanding support from NASA at every level of the organization. It was clear from every interview that NASA personnel are dedicated to accomplishing their mission – the interviews were characterized by openness, honesty, cooperation and a palpable desire to make things better. As the review progressed, it became apparent that major vulnerabilities, underlying root causes and contributing factors extend well beyond the specific medical aspects of NASA operations. Many of the cultural and structural issues identified in the report have existed for many years, pre-dating the current leadership team, are deeply ingrained and will take senior leadership action to remediate them.

The committee concluded that NASA's astronaut health care system provides easily accessible services to astronauts and their families, which were consistent with accepted standards of care. There is room for improvement in the provision of behavioral health services, particularly in selection, training, evaluation and support of astronauts preparing for and participating in space missions. The medical and behavioral health systems could be better integrated and focused on astronaut performance enhancement.

During the interviews, members of the NASA medical and astronaut communities raised significant concerns regarding barriers to communication. As examples of these barriers to communication, they described instances where medical personnel or fellow astronauts raised concerns about an astronaut's fitness for flight due to alcohol use in the immediate preflight

period, and these concerns appeared to them to be disregarded or overridden. The committee is very concerned about this perception of disregard for human factors inputs, and strongly recommends that NASA conduct further evaluation using tools such as anonymous surveys, to determine the extent of such perceptions, and ensure that human factors concerns are appropriately identified and dealt with.

Unfortunately, since the release of the committee's report, a disproportionate amount of media attention has been focused on the section of the report discussing specific incidents of astronauts and alcohol use. In separate interviews, NASA astronaut and medical personnel described two specific instances of alcohol use to the committee as examples of a much larger issue: that NASA personnel felt that human factors concerns with significant safety implications had been disregarded when raised to local on-scene leadership. These incidents were described by eyewitnesses to the events, and were provided voluntarily and unprompted by NASA personnel to the committee. In order to encourage them to speak freely, the committee assured the interviewees that we would make every effort to keep names, dates and other specifics out of our notes and out of the report. The general sense of disregard for human factors, described as "demoralizing" to the point where NASA personnel are less likely to report concerns of performance decrement, is the fundamental concern NASA must investigate and address.

We understand the outrage that some members of NASA have expressed at this particular finding. The fact remains that the incidents described in the report that have generated so much concern and anger were told to the committee voluntarily by NASA personnel who were eyewitnesses to the incidents. NASA must ensure that people can identify such safety and

human performance concerns within NASA without fear of reprisal or career injury. Public statements that such things are simply impossible, challenging the veracity of these findings rather than acknowledging how difficult raising such concerns can be, do not encourage openness and safety.

Human behavior is complex. Prediction of future behavior, even by behavioral health experts, is extremely difficult to perform accurately. Systemic procedures alone cannot predict disordered conduct, but human factors concerns or issues that arise or are identified in one realm could be more effectively shared with others and potentially result in earlier intervention. The committee identified a number of structural and cultural issues that currently exist in NASA that make it even more difficult to predict an episode of disordered conduct, and made recommendations to ameliorate them. These recommendations include instituting a formal, written code of conduct, creating enduring supervisory/mentoring relationships with effective feedback and evaluation, and empowering supervisors, peers and support staff to bring forward concerns. Using similar processes, organizations as diverse as the military, the FAA and the VA have made great progress, with active supervisory and peer involvement, in changing cultural attitudes towards safety, accountability, empowerment and alcohol.

This report contains a wide range of findings and recommendations. Some of these recommendations will be relatively simple to implement, such as writing standard operating procedures to document processes, which are already in place. Some will take substantially more time and effort to implement, such as restructuring astronaut supervisory relationships or focusing the attention of psychologists on astronaut performance enhancement. Some

recommendations entail changing deep seated, long standing aspects of astronaut, flight surgeon and safety cultures regarding alcohol use, code of conduct, acknowledgement of human performance issues, selection, training, evaluation and professional development, communication and privacy. None of these issues lend themselves to easy analysis or correction of a single factor. All of them require further study and evaluation by NASA. Solutions will require a systems-based approach and will take time to achieve.

We believe the three most important issues and risks in this report can be summarized in the following areas: First, NASA personnel's sense that human factors concerns are disregarded and that this has made them reluctant to identify such concerns in the future: second, that supervisors, peers and other NASA personnel must be empowered and expected to enforce standards of conduct; and third, that medical and behavioral health services should be integrated and focused on astronaut performance enhancement. The issue of perceived disregard of human factors concerns is by far the most worrisome and demanding of immediate attention.

To restate, the committee believes the first and most important step that needs to be taken by the NASA senior leadership is to conduct a thorough, anonymous survey of the relevant NASA populations covered by this report - medical personnel, astronauts, and training personnel. This survey should be carefully worded in order to obtain valid, actionable information. NASA senior leadership should provide vocal support for the survey and encourage NASA personnel to be open, honest and thorough in their replies. They must be assured of anonymity, freedom from reprisal and that the information will be used appropriately, otherwise the concerns will be driven further underground. The committee's report identified many areas

of concern to NASA – only with such a comprehensive, anonymous, valid and visibly-supported survey can NASA determine the scope of the problems and drive toward systems solutions.

The committee appreciates the openness of and the assistance provided by NASA leadership, astronauts, medical personnel and family members. They clearly share the overarching goal of the committee – to enhance the ability of NASA to perform its mission safely and effectively.

Thank you.